THIS NUMBER COMPLETES THE 50th ANNUAL VOLUME

ENTOMOLOGICAL NEWS

DECEMBER, 1939

Vol. L **No. 10**

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PHILADELPHIA, PA.

THE ACADEMY OF NATURAL SCIENCES,

1900 Race Street

Entered at the Philadelphia, Pa., Post Office as Second Class Matter.
Acceptance for mailing at the special rate of postage prescribed for in Section 1.
Act of October 3, 1917, authorized January 15, 1921.

Subscriptions for 1940 are now due

ENTOMOLOGICAL NEWS

published monthly, excepting August and September, by The American Entomological Society.

Philip P. Calvert, Ph.D., Editor; E. T. Cresson, Jr., R. G. Schmieder, Ph.D., V. S. L. Pate, Associate Editors.

Advisory Committee: Philip Laurent, J. A. G. Rehn, Chas. Liebeck, J. Chester Bradley, Ph.D., Frank Morton Jones, Sc.D., John C. Lutz, Max Kisliuk, Jr., Wm. W. Chapman.

The subscription price per year of ten (10) numbers is as follows: United States and possessions, Central and South America $3.00, Canada $3.15, Foreign $3.25, Single copies 35 cents.

ADVERTISING RATES: Full width of page. Payments in advance.

One issue, 1 in., $ 1.20, 3 in., $ 3.00, 5 in., $ 5.00, 7 in., $ 7.00

Ten issues, " 8.00, " 25.00, " 45.00, " 60.00

SUBSCRIPTIONS. All remittances and communications regarding subscriptions, non-receipt of the "News" or of reprints, and requests for sample copies, should be addressed to

ENTOMOLOGICAL NEWS, 1900 Race Street, PHILADELPHIA, PA.

MANUSCRIPTS AND ADVERTISEMENTS should be sent to the editor, Dr. P. P. Calvert, P. O. Box 14, Cheyney, Pennsylvania.

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ENTOMOLOGICAL NEWS

VOL. L DECEMBER, 1939 No. 10

The Seventh International Congress of Entomology at Berlin.

By J. CHESTER BRADLEY, Cornell University,
Ithaca, New York.

On the twenty-fourth of June, 1938, a group of American entomologists, some with their families and joined for the trip by friends until the party numbered in all twenty-one souls, sailed down the St. Lawrence on the Duchess of Atholl, bound for the Seventh International Congress of Entomology at Berlin, but intent upon a program of travel and sightseeing before and after that Congress. Intense heat at Montreal gave way to the bitter cold of iceberg-laden seas off the coast of Labrador, and from there for the balance of the summer, we seemed always to be having too much cold for complete comfort or too much rain, or both.

Landing at Belfast on the first of July, we were met by enterprising Irish reporters, who for some reason got the idea that we were hot on the trail of the yellow fever mosquito, and published a notice of our arrival under the heading "Meet public insect enemy number one," disclosing that said mosquito is the culprit. They further informed the wondering Ulstermen that we had no insects with us, that it was not necessary, since a good collection exists in Berlin!

Followed a two-weeks' tour by chartered motorcoach of Ulster, Donegal, the more northern parts of the Irish Free State, Wales and southern England, a week in London, and thence to Newcastle and over the North Sea to Bergen, Norway. Days on the Hardänger, Näro and Aurlands Fjords among the snow clad mountains of Norway, at Oslo, Lake Mjosa and Lillehammer, at Gothenborg in Sweden and Copenhagen in Denmark strongly contrasted in every respect with

those which, just preceding the Congress, were spent in northern Germany, at Hildesheim, in the Hartz Mountains, and in viewing the Wartburg, where Luther was once imprisoned.

The evening of Sunday the fourteenth of August we reached Berlin. Too late we were for the less energetic members of the party to attend the presession social gathering at the University. The apparently limitless and very imposing buffet at that event, at which the congressionists were the guests of the Congress committee, set a standard of lavish hospitality which was maintained if not exceeding at every event of the following week. On this occasion the Reichsnährstand provided the wines, and it afforded opportunity for those curious about such matters to sample wine of Germany's finest and most celebrated types.

On Monday morning the solemn opening session of the Congress took place in the Aula-Gebäude of the University with great eclat and pomp. After an orchestra concert of classical music, the Under Secretary of State in the Ministry of Education addressed the gathering and declared the Congress open. Addresses of welcome were spoken by the Assistant Secretary of State, by His Magnificence, the Rector of the University of Berlin, and by the Chief Burgomaster and President of the City of Berlin; to these Dr. Jordan, Permanent Secretary of the Congress, responded, and then Dr. Jeannel on behalf of the foreign delegates. The President of the Congress, Dr. Eric Martini, Director of the Institute for Tropical Diseases at Hamburg, addressed the session upon the subject of medical entomology. This address was dramatically interrupted by the arrival of a military orderly with a message which he presented to Dr. Martini. The president tore the envelop open; glancing it over he drew himself up and almost barked it out to the assembly—a message of felicitation and good will to the Congress from Adolf Hitler.

General sessions were held on Monday, Tuesday, Thursday and Saturday mornings. The afternoons of Monday, Tuesday, Thursday and Friday were devoted to meetings of sections. Of these the subjects were: Systematic entomology and zoogeo-

graphy; nomenclature and bibliography; morphology, physiology and embryology; genetics; ecology; medical and veterinary entomology; apiculture and sericulture; forest entomology; viticulture, fruit crops and horticulture; field crops and vegetables; the potato beetle; storage pests; pest control; conservation and teaching; and the cockchafer. Potato beetles are now a serious problem in France; they have migrated into Germany but the infestation there is not yet serious. All Europe is awake to the menace of these beetles, as was evidenced by posters we had noticed throughout England and Scandinavia warning anyone who found any to forward them to an experiment station.

More than eleven hundred persons were registered at the Congress, three hundred and fifty of whom came from outside of Germany. About thirty Americans present were registered as full or associate members. Sixty of the members were from England, thirty-five from France, twenty-five from Holland, twenty from Sweden; in all around fifty countries were represented.

Of more than three hundred papers read, one hundred thirty were on economic entomology, seventeen on medical entomology, sixteen on apiculture, the balance on non-applied phases of the science. Seventeen per cent of the papers were read in English, the same in French, four per cent in Italian, forty-two in German. They covered, of course, a very wide range, and the most that can be done here by way of review, is to select, more or less at random, some ideas, suggestions, or facts presented that are of a broad or general interest.*

Dr. Rudolf Heberdey of Graz suggested criteria* by means of which the phylogenetic age of species might be determined from exact knowledge of their distribution, manner of life, and systematic position, as well as of the geological history of the area in which they live, on the ground of certain distributional peculiarities, namely: discontinuous distribution of a

[* Those of the following papers summarized by Prof. Bradley which have been published in full in Band I of the Verhandlungen of the Congress (dated Weimar, April, 1939, and received in the United States in July, 1939, by some members at least) are marked with a star*.—EDITOR.]

form establishes minimum age; discontinuous distribution of closely related forms establishes maximum age for the forms in question, and minimum age for the next higher systematic category; common discontinuous distribution of nearly related forms makes the minimum age of both the forms in question and of the next higher category very probable.

The thoroughgoing analysis of the highly plastic Holarctic species group of *Papilio machaon*,* presented at Munich by Dr. K. Eller was a distinct contribution to and illustration of the principles underlying specific and subspecific differentiations of significance to every thoughtful taxonomist: there are sixty-two races of *P. machaon*, twelve of which, according to Dr. Eller, are "refugial races," that is forms which in retreat from the cold of the glacial period, found refuge in as many isolated "refuge areas," and which in postglacial times became in turn centers of dispersal, from which the balance of the races have been subsequently derived.

Along parallel lines was a paper by S. R. Zarapkin, a geneticist of Berlin, entitled "The principal of divergence in the determination of the lesser systematic categories."* In answering the question as to whether we are yet in position to define such categories through divergence and convergence coefficients, he laid down three provisional conclusions, as applying to the Epilachna forms of which he was speaking: The variation of the median character differentiation of one "population" from another, is similar to that of the individuals within the population, and gives the standard deviation Sp and $\pm$ s; the variation of the median character differentiation of a "race" is similar to that of a foregoing population, and gives Sr that fluctuates perhaps from $\pm$ 1 to $\pm$ 2 s; the variation of the median character differentiation of a species remains insufficiently studied, and we can not as yet lay down a formula.

Dr. R. Jeannel presented some of the zoogeographical results emanating from his long study of the Adephaga,* primitive suborder of Coleoptera: to him it appears that the fauna of heterometabolous insects developed in Laurasia (the land masses

of the northern hemisphere), and had for the most part disappeared by the end of the Paleozoic, before the irruption of the Holometabola, which came from Gondwana (land masses of the southern hemisphere); all that we know of the phylogeny and biogeography of beetles accords with this notion of the Gondwanian origin of the Heterometabola. In all of the beetles which the speaker had studied, of which the history extends sufficiently far into the geologic past, there are two categories of lines: the first still occupy the remnants of Gondwana, and represent the survival of species and species groups which evolved on the fragments of that continental mass during the Mesozoic; the others occupy the Holarctic region, and their evolutionary expansion appears to have occurred during the Tertiary. Of the Gondwanian lines of Carabidae there exist three types of distribution: 1) Antarctic Australo-American, illustrated by the very isolated Migadopidae, living in New Zealand, the Auckland Ids., the south of Australia and Tasmania, the south of America and the Falkland Islands; these doubtless date from the Cretaceous, when according to Köppen and Wegner, Patagonia, the western Antarctides, Australia were assembled around the 60°-70° lat. S., and life could be sustained up to 75° lat. S., as under the present antarctic climate; 2) Africano-Brazilian, exemplified by the Hiletidae, as by many other lines, all strictly tropical; the speaker found a more accentuated divergence of characters between the American and African species (distinct genera) than between those of Africa and Madagascar in comparison with Indo-Malaya (subgenera); those of Africa and Madagascar are of the same subgenera, and it is evident that the separation of Madagascar from Africa is subsequent to the separation of the latter from Brazil, contrary to what is generally believed, further it occurred during the Tertiary, even later than the separation from Indo-Malaya, which is not in accord with the theory of an Indo-Malagasy continent "Lemuria"; 3) Godwanian-Oriental, that of the great majority of Godwanian lines. The present day species populated all the borders of the Indian Ocean, Australia and sometimes

New Guinea, Indo-Malaya, even Hawaii, Africa, especially eastern, and Madagascar; some have migrated into the Mediterranean Region; from whence they have even spread to the Antilles, a passage which caused Scharff to assume the existence of an Eocene transatlantic land-bridge, although such a supposition is not supported by a single geological fact. According to Köppen and Wegner the north pole during Eocene times was situated at what is now 45°N, south of Alaska and the equator passed through the Antilles and Mediterranean. The North Atlantic was closed by the union of Greenland with Labrador and Norway forming a continuous continent at latitudes of 20° to 35°N, *i. e.* with a climate which would permit and did permit the interpassage of tropical forms, between the Mediterranean and the Antilles, and vica versa; the subsequent cooling of the North Atlantic climate has completely obliterated the intermediate steps of these species.

In the same field was a paper by E. Voss of Berlin on intercontinental distribution of Rhynchitinae, Attalabinae and Apoderinae,* in which after giving the present distribution of each tribe he discussed the origin and subsequent changes of the continental masses from their beginning to the present time; he outlined the tremendous forces which started the continental shifts in the sense of Wegner; and he pointed out the way in which the actuating causes of the changes in the surface of the globe are based on processes inherent in the structure of the earth. In contrast with the statements previously made by Dr. Jeannel as to distribution of Adephaga, the distribution given for the tribe Trachelophorini is of particular interest, for that tribe does not occur in Africa, but is represented by 25 species in Madagascar, and by over fifty in the Oriental Region.

Dr. Kjell Ander spoke on the phylogeny and classification of the Grylloidea and Tettigonioidea, which he considers as together forming the Ensifera. By reason of primitive characters of musculature and of the tracheal system he does not derive the Grylloidea from either fossil or recent Tettigonioidea, but places them as a primitive side-branch. They com-

prise two families: Gryllidae and Gryllotalpidae; Tettigonioidea six: Raphidophoridae, Schizodactylidae, Gryllacrididae, Stenopelmatidae, Prophallangopsidae, and Tettigoniidae. By reason of many primitive characters the Raphidophoridae form the second side-branch of the order, the very isolated Schizodactylidae the third, and the Gryllacrididae the fourth. The three remaining families build a well circumscribed group within which the Tettigoniidae are the most highly specialized family and probably arose from fossil Prophalangopsidae. The author believes that the superfamilies Tridactyloidea and Acridoidea, which form the group Caelifera, may be derived from the fossil families Elcanidae and Locustopsidae, which are true Ensifera.

In a paper on the distribution of the Mantodea* the mantids, Max Beier emphasized the strong divergence between the fauna of the old world and that of the new. He considers the Ethiopian Region as being the center of the distribution, lacking but few of the major groups, with many endemic genera, one subfamily and one tribe. It also has the greatest number of species. Its closest relation is with the Oriental and Australian. The Nearctic fauna is an attenuated offshoot of the rich and highly distinctive Neotropical, but the three endemic Nearctic genera are not so, their nearest relatives being Palearctic.

The relations of Corduliinae to other dragonflies* was discussed by Dr. Douglas St. Quentin of Vienna, with the conclusion that the Corduliinae, Cordulegasterinae and Gomphidae form a natural phylogenetic group which possess in common all characters which in reality separate the Corduliinae from the Libellulinae, with which they have long been associated. These characters lie in the primary antenodal cross-veins, the brace-vein of the pterostigma, the anal triangle, the anal angle, the emargination of the hind margin of the compound eyes, the tibial carinae, the stark differentiation of the male anal appendages and in the auricles. The Corduliinae lack the "oblique vein" characteristic of all Libellulinae, and of them only; both groups differ fundamentally in the structure of the

male genitalia, in the proportinate length of abdomen and hind wing, in color pattern, and in choice of biotope of both larval and imaginal stages. He showed why the dissimilarity of the triangles of fore and hind wing, characteristic of both Corduliinae and of Libellulinae (but also occurring in Petalurinae, Petaliinae, and many Gomphidae) has come about in different ways in the two groups, and is therefore no mark of relationship, and that the "genital lobes," occurring only in these two groups, are also convergent structures. Finally he showed that the labium of Corduliine nymphs can be derived from a stadium similar to that of Cordulegasterinae and Gomphinae, indicating probable relationship to those groups; the labium of the adult shows no such relation, but is on the other hand similar to that of the Libellulinae, whether by relationship or convergence remains still uncertain.

Tea served in the garden of the university each afternoon between three and five afforded a pleasant opportunity to relax from the sessions, to meet one another and to chat.

At six Monday afternoon a scheduled visit to the Biologische Reichsanstalt für Land und Forstwirtschaft at Dahlem, a suburb of Berlin in which many scientific undertakings are housed, afforded opportunity to become acquainted with the official organization of plant research and its application in Germany. The Biologische Reichsanstalt is an institution of the Ministry of Food Stuffs, and works in cooperation with the plant protection offices of the Reichnährstand. The Reichsanstalt is responsible for the research side of the work, and for carrying on experiments to determine the best methods of pest control. The Reichsnährstand is responsible for carrying control measures into effect. The Biologische Reichsanstalt consists of five divisions: Plant Protection; Insecticide and Fungicide laboratory; Botanical division; Zoological division; and the division of Microbiology which includes both bacteriology and mycology. There is no division of entomology, but entomologists are attached to the staff of three of the divisions. In addition to the headquarters in Berlin, the Reichsanstalt maintains eight branch experiment stations, situated in various

parts of Germany, with particular objectives relative to special types of crops.

The Institute of Biology, the Institute of Anthropology and the Botanical Gardens, all located in Dahlem, were also on the program for visiting on Monday afternoon.

A reception was given at the Carl Schurz house on Monday evening to the Americans attending the Congress. Named after the most illustrious of German Americans, the Carl Schurz House is dedicated to the fostering of good relations between the intellectual circles of Germany and America.

On Tuesday afternoon the ladies of the Congress were entertained at a tea, fashion parade and musicale at the Hotel Adlon. Later the Deutsches Entomologishes Institut of Dr. Walther Horn at Dahlem was opened for the inspection of Congressionists; interesting exhibits illustrative of the biology of insects had been prepared for inspection.

A social evening at the Harnack Haus, near Dr. Horn's Institut in Dahlem followed. We were learning by this time a distinction between American and German receptions. In the latter no receiving line is formed, nor do the guests circulate and assemble in groups to chat. Instead one immediately finds a table, sits down, and the eating and drinking continues more or less throughout the evening. Later on every one begins to move about to chat with friends at other tables, or to gather in groups and talk. This same evening the Hymenopterists attending the Congress assembled at one of the city restaurants, and drank some beer together in good fellowship.

Wednesday the paper-reading sessions were replaced by field trips. Bus after bus was filled with congressionists. Then all in a long, long line they drove out into the country into forest lands. There they stopped; we were told to alight, and started off on an almost endless walk through the forest, to which indeed, there seemed little point, for we were too hurried for collecting specimens, and there was nothing in particular to see, except a forest experiment station which we passed with neither stop nor explanation. Again we boarded the buses, and followed one of the famous Reich-

sautobahnen—government auto highways—until we turned off and drew up at a restaurant on the shores of Lake Werbellin, where our great number sorely taxed the capacity; there we enjoyed a delicious luncheon. Afterwards the party was split into four, some to visit the forestry college at Eberswalde where Dr. Schwerdtfeger lectured on the control of forest pests; some to visit a former hunting box of the ex-kaiser at Hubertusstock and listen to a lecture on parasites of native game animals by Dr. Ullrich; others to visit the Cloister Chorin and the great barge-lift at Niederfinow; and some just to ride around Lake Werbellin, with perhaps a dip in its waters.

On Wednesday evening the Zoological Museum of the University was open for inspection. The same evening we were tendered an elaborate formal reception by the Minister of Science, Education and Instruction on behalf of the government. This was given in the great festival room of the "Kroll" and was a very colorful occasion. It might better be termed a banquet than a reception. While seated at tables, eating, the audience listened to several addresses.

On Thursday evening another very elaborate reception was given to the Congressionists at the City Hall, or as they call it "Rathaus," by the Chief Burgomaster and City President of Berlin.

On Friday morning there was a choice of excursions to the Biological Station and reserve at Bellinchen; to Oderberg-Liepe for collecting; or to Potsdam to see the palaces of former royalty. In the evening the Grand banquet and ball in the Marmorsaal of the Zoological Gardens formed the climax of the week's social events. As a charming and appropriate souvenir, a piece of Baltic amber containing a fossil insect was attached to each menu card. A memorable feat of the president on this occasion consisted of repeating an address in quick succession in each of six different languages.

About two hundred and fifty members of the Congress made the trip to Munich Saturday night and the final events of the Congress were held in that city. The committee wished the members to see the rich treasures of art and science amassed

in that old Bavarian capital, for centuries the intellectual center of Germany.

The Burgomaster gave a reception to the Congressionists on the evening of their arrival; the atmosphere of Munich is quite different from that of Berlin, and the reception was less formal; many of the University faculty and leading townspeople had been invited, so that there was opportunity for the Congressionists to become acquainted with Germans in other walks of life. There was an address by Professor Escherich, and entertainment in the way of folk dancing and ballet dancing.

The attractions of greatest interest in Munich were really notable exhibits provided at the library and at the Zoological Museum illustrative of the use of insects in art; these were visited on Monday morning, and in the afternoon a session was held at the Zoological Institute of the University, at which Dr. von Frisch exhibited films dealing with the physiology of the senses and language of bees, and Dr. Eller displayed under biological-ecological headings the complete racial relationships of *Papilio machaon*.

The group of excursionists from America did not continue to Munich, but after the close of the Congress in Berlin, went to Czestochowa, a great pilgrim shrine in Poland where we saw very colorful processions of pilgrims in their beautiful peasant costumes thronging as they have for centuries to the monastery of the Black Madonna. Then we visited Cracow, ancient center of Polish culture, and former Capital, one of the rare old medieval towns of Europe, and so to Banska Bystrica, a typical town among the hills of central Moravia; and from there we went to Budapest where there was a great deal of interest. Certainly outstanding in our memories of Hungary will be the sight of peasants dressed in their gorgeous finery, going to church, at villages on the great Hungarian Plain, far to the east.

Following a stop in Vienna, rest and contrast after a strenuous summer was afforded among the forested Alps of Upper Austria, at the Almsee, lovely lake, nestled deep within the

mountains, rarely visited by foreigners, and with only a single primitive hostel where guests may be accommodated.

After a few days in Munich, and a week among the high Alps in Switzerland, including a day of cold glorious sunshine spent at the Jungfraujoch overlooking the incomparable glaciers and snowfields on the south of the Jungfrau, we reached Paris, where we were rejoined by some members of our party who had left us in Austria to visit Italy; so the summer passed, and soon the party was again at sea, this time on the swift Empress of Britain, swiftly, if not too steadily, speeding homeward to Quebec.

In the light of more recent events, one can publish this paper only with a feeling of great sadness. Since our visit the evil shadow of Germany has spread over Moravia, and the long night has descended upon Poland. Our German hosts are at war with our French and English colleagues and no man can forsee the outcome, except that the torches of learning will be dimmed. Perhaps not again in our time can we foregather for such a congress; but the tragic experience of our generation may teach those yet to come that the path of mankind must be lighted by the torches of science, of knowledge, and of human experience, and that neither the democratic masses, deep within the shadows far in the rear of the light, nor unbalanced theorists holding false lures over treacherous side-paths, nor dictators, without light of their own, but following self-interests, shall be allowed to determine the paths which mankind shall tread.

A New Entomological Publication.

The Entomological Society of Washington has recently carried out the plan conceived long ago, of beginning publication of its memoirs. "The North American Bees of the Genus Osmia," by Grace A. Sandhouse, constituting memoir number 1, has been received recently from the press of the Monumental Printing Company, Baltimore, Maryland. This memoir can be obtained at $3.00 by addressing the Corresponding Secretary of the Society at the Bureau of Entomology and Plant Quarantine, Washington, D. C.—D. J. CAFFREY.

A Black Widow Spider in a Minnesota Winter (Araneae, Theridiidae).

By JOHN P. TURNER, University of Minnesota.

The possibility of being bitten by a black widow spider during a snow storm in zero weather in Minnesota is not very great, but my recent experience indicates that it probably can happen here. The unusual circumstances seem worth recording.

On December 28, 1938, while purchasing provisions at a grocery store near the University of Minnesota campus in Minneapolis, I was presented with an iced tea-size advertising glass with an aluminum top which fitted on like a small cocktail shaker top. Inside the glass was an advertising leaflet. Without removing the top I placed the glass along with my purchases in a paper bag, drove four miles home through the snow-filled air which had warmed up to 15° from the day's low of 5° F. below zero. Shortly after reaching home my wife and I were opening the packages and she removed the lid from the glass, started to reach inside for the advertising folder when the telephone distracted her and she set the glass down on the table in front of me. As I reached for it, a spider crawled from between the leaves of the folder and started scrambling around in the glass. I lost no time in recapping the glass as I recognized the intruder as *Latrodectes mactans*. My identification was confirmed by Dr. Harold Shepard of the Division of Entomology and Economic Zoology of the University of Minnesota. The red ventral spots were connected in a nearly perfect hourglass. There was a row of orange-red spots running down the mid-dorsal line of the abdomen, and three short, oblique, yellow bars on the dorsal-lateral surface of the abdomen, an indication of its immaturity. The legs were marked with lighter colored bands on the proximal ends of each tibia, but otherwise the spider was black. After shrinkage in 70% alcohol the abdomen measured about 4 mm. long, 3 mm. high and 2½ mm. wide, and was obviously an immature female.

Where did the spider come from? The grocery people were sure that the tops had not been removed from the shaker glasses. The company advertising the product said the gift glasses were packed, with the tops on, in West Virginia not later than October. Therefore, either the spider survived a nearly air-tight confinement in the glass for two months and a freight journey half way across the country in freezing weather, or else the spider got into the glass after reaching Minnesota in mid-winter. The latter alternative seems unlikely, especially as no black widow spiders have been reported from this immediate locality even in summer.

In either case this record indicates that even the zero weather of a Minnesota winter is not absolute protection against the dissemination of, nor the possible injury from, this dangerous spider.

Corrections and Additions to the Clemson List of Scarabaeidae and Other Records from South Carolina (Coleoptera: Scarabaeidae).

By O. L. CARTWRIGHT, Clemson, South Carolina*

In the five years since publication of a list of Scarabaeidae collected at Clemson, South Carolina (Entomological News, XLV, 1934, pp. 237-240, 268-269), sixteen additional species have been taken in the same small area, bringing the total to 163 species of 51 genera of the family. These additions have been as follows:

AEGIALIA BLANCHARDI Horn—March 20, 1935.
ATAENIUS LECONTEI Har.—July 28, 1937.
A. ALTERNATUS (Melsh.)—August 17, 1935.
A. SCHWARZI (Linell)—July 20, 1935.
A. ERRATUS Fall—July 19, 1934.
A. BREVIS Fall—July 28, 1937.
PSAMMOBIUS INTERRUPTUS Say—May 12, 1936.
PLEUROPHORUS BATESI Arrow—September 10, 1937.
SAPROSITES VENTRALIS (Horn)—April 14, 1938.
ODONTAEUS LIEBECKI Wallis—October 13, 1934.

* Technical Contribution No. 70 from the South Carolina Experiment Station, Clemson, South Carolina.

BOLBOCEROSOMA TUMEFACTUM (Beauv.)—June 1, 1937.
TROX SORDIDUS Lec.—March 16, 1936.
PHYLLOPHAGA CERASINA (Lec.)—July 24, 1931.
P. KNOCHI (Gyll.)—July 9, 1936.
HOPLIA TRIFASCITA Say—April 21, 1933.
ANOMALA KANSANA H. & McC.—June 10, 1936.

In the original list two species were listed incorrectly. *Aegialia conferta* Horn should have read *Aegialia conferta* var. *punctata* Brown and the species erroneously determined as *Aphonus tridentatus* (Say) should have been *Aphonus variolosus* Lec.

Other records, which may add to the known distribution of Scarabaeidae, have furnished interest and some surprise in studying the fauna of South Carolina. Unless stated otherwise, the following were collected and determined by the writer:

PHANAEUS NIGER d'Ols., Walterboro, September 12, 1933, Geo. Johnson.

COPRIS TULLIUS Oliv., two mountain localities: Jocassee, July 13, 1936, J. A. Berly, and Cashier's Valley Road, Oconee Co., October 3, 1934.

ONTHOPHAGUS POLYPHEMI Hubbard, in burrows of gopher turtle, Tillman, August 15, 1931.

AEGIALIA HUMERALIS Brown, Chatooga Fish Hatchery, Oconee Co., April 26, 1935. (Compared with type by W. J. Brown).

APHODIUS TROGLODYTES Hubbard, in burrows of gopher turtle, Tillman, August 15, 1931.

A. VESTIARIUS Horn, Tillman, September 27, 1938.

A. PHALERIOIDES Horn, Ocean Drive Beach, August 20, 1934.

ATAENIUS CAROLINUS Van Dyke, Sassafras Mountain, June 16, 1937.

PSEUDATAENIUS SOCIALIS (Horn), Charleston, June 15, 1930, Summerville, July 9, 1936, Monck's Corner, July 7, 1936.

South Carolina males of this species show an extreme development of the terminal spur of the anterior tibia. The spur is quite long, half as long as the inner margin of the tibia, gradually twists to the right and doubles its width at two-thirds its length, then curves inward to an acute incurved tip. Examination of a series of specimens in the U. S. Na-

tional Museum from various localities from South Carolina to Kansas shows a gradual change in the length and shape of the spur to the normal short spur of the mid-western specimens.

DIALYTES STRIATULUS (Say), three mountain localities: Long Creek, Cashier's Valley Road and Sassafras Mountain, July 20 to October 24.

SERICA DELICATA Dawson, Blackville, April 1, 1938, trap light.

PHYLLOPHAGA ARKANSANA Schffr., Florence, St. Paul, and Columbia, April 21 to July 12.

P. POSTREMA Horn, Florence, Summerton, and Georgetown, June 3 to July 19.

P. CALCEATA Lec., Saluda, May 8, 1931, F. Sherman.

P. CUPULIFORMIS Langston, Meredith, April 29, 1927, and Conway, May 17, 1932.

P. MARIANA Fall, Blackville, June 8, 1938.

P. FLORIDANA Robinson, Monck's Corner, August 17, 1931, F. Sherman.

DICHELONYX ELONGATA (Fab.), Sassafras Mountain and Chatooga Hatchery (Oconee Co.), May 20 to June 3.

D. DILUTA Fall, Sassafras Mountain and Chatooga Hatchery, May 18, 20, 1937.

D. ALBICOLLIS Burm., CCC Camp F-2, Oconee Co., June 4, 1937, F. Sherman.

ANOMALA MENDICA Csy., White Pond, June 8, 1939.

A. PARVULA Burm., Florence, Manning, and Blackville, May 29 to July 14.

CYCLOCEPHALA PARALLELA (Casey), Summerville, Florence and Charleston, June 2 to July 12.

C. NIGRICOLLIS Burm., Columbia and Summerville, June 20 and July 5.

C. PUBERULA (Lec.), Charleston, June 9, 1934, J. P. DeVeaux. Georgetown, June 13, 1937, C. B. Eaton.

PSILOCNEMIS LEUCOSTICTA Burm., Clarendon Co., near Santee River, August 1-9, 1896. Specimens in H. C. Fall collection.

CREMASTOCHEILUS CASTANEAE Knoch., Sassafras Mtn., May 15, 1931, F. B. Whittington, and Chatooga Hatchery (Oconee Co.), April 26, 1938, J. N. Todd.

OSMODERMA EREMICOLA Knoch., Greenville, May 17, 1930, H. K. Townes, Jr., and York Co., Louetta Youngblood.

Nitidulid Notes and Descriptions (Coleoptera).

By H. R. Dodge, Clintonville, Wisconsin.

Epuraea flavomaculata Mäklin is a distinct species and not closely related to *terminalis* Mann., or *immunda* Sturm, with which it was considered synonymous by Reitter in 1873. It is easily distinguished from the latter by its quadrimaculate elytra and the two structural characters, namely, middle tibiae of the male unmodified and intercoxal process of abdomen broad and obtuse; characters which apparently neither Reitter nor Horn could observe in their examination of Mäklin's types. This species therefore belongs to Group II of Horn's key, among the species with abdominal intercoxal process broad and obtuse. A key for these species is proposed below.

The type specimens were taken from the Kenai penninsula, Alaska, under the bark of trees. There is in the U. S. National Museum a series of this species determined by the late E. A. Schwarz and collected by Mr. Hubbard at Beaver Mine, Algona, Ontario, Sept. 14 and 16, 1889. Other records of this species are Detroit, Michigan, Itasca Park, Minnesota, Mt. Washington, New Hampshire and Cloudcroft, New Mexico.

Key to *flavomaculata* and allies

1. Elytra not spotted ..... (2)
   Elytra spotted ..... (4)
2. Elytra very broadly truncate behind, apex subequal in width to base; male first ventral with 2 longitudinal rows of hairs ..... *alternas* Grouvelle
   Elytra narrowing to the truncate apex; male first ventral not modified ..... (3)
3. Elytra narrowly margined; pubescence above grey, not conspicuous ..... *ovata* Horn
   Elytra more widely margined; pubescence above long, conspicuous due to silvery luster ..... *populi* sp. nov.
4. Disc of pronotum uniformly dark colored; posterior male femora simple; body oblong, depressed.... *flavomaculata* Mäklin
   Pronotum with a median longitudinal pale stripe; posterior male femora obtusely subangulate; body form more oval and convex ..... *peltoides* Horn

Epuraea populi sp. nov.

♂ *Holotype.* Oval, subdepressed. Body piceous, under surface with brownish tinge. Moderately shining, sparsely clothed with prostrate, silvery hairs, which often are not directed straight backwards. Body above and below with uniform, close, moderately coarse punctures with the following exceptions: mesosternum, prothorax below the basal angles and on a space external to the coxae and extending anteriorly, impunctate; prosternum sparsely, indistinctly punctate.

Labrum not deeply bilobed. Antennal joints 3-5 elongate, equal in length to club, 3 and 5 subequal in length, 4 shorter, 5-8 moniliform, club elongate, 1½ times longer than wide.

Thorax 2.23 times broader than long, broadest at basal third, thence narrowing slightly to the square basal angles and hardly arcuately converging to the rounded anterior angles, base very feebly bisinuate, apex broadly emarginate, lateral margins explanate. Elytra conjointly slightly longer than broad, lateral margins explanate, feebly arcuate and narrowing posteriorly to the truncate apical margin. Upper surface of body slightly irregular due to three feeble transverse impressions on disc of each elytron one at basal and apical fourths and one just before the middle, and an inward extension of the depressed lateral thoracic margin at the basal third. Tarsi dilated; tibiae slender, not modified.

Intercoxal process of abdomen broad and obtusely angled. Male with the extra anal segment.

Dimensions: length 2.81 mm., width 1.74 mm., pronotum .71 mm. long, 1.6 mm. wide at widest point, elytra 1.74 mm. wide, 1.79 mm. long.

♀ *Allotype.* Quite similar to the male in all respects but lacking the dorsal anal segment. Dimensions: length 2.86 mm., width 1.79 mm., pronotum .7 mm. long, 1.53 mm. wide, elytra 1.89 mm. long, 1.79 mm. wide.

Specimens vary from 2.2 to 3.32 mm. in length, and are 1.6 to 1.64 times longer than wide. The under surface is usually slightly browner in color than the upper, though from above the lateral margins of pronotum and elytra are also brownish. There are minor variations in the squareness of the truncature of the elytral apex, width of pronotum in comparison to the elytra, and position of the widest point of the thorax (in some this is appreciably behind the basal third), but none of these characters can be correlated with sex. The tip of the

abdomen is deflexed in most specimens, and therefore usually completely concealed from above.

This species is most closely allied to *flavomaculata,* from which it is distinguished by its uniform dark color, oval shape and more conspicuous vestiture. From *ovata* it is distinguished by the vestiture, broader form, more widely margined elytra, and thorax scarcely constricted at base.

Holotype and allotype were collected at Itasca Park, MINNESOTA, June 15, 1937, and July 9, 1936, respectively; 11 paratypes were collected at the same locality, May 17 to June 15, 1937; 2, Ramsey County, Minn., July 25, 1936; 1, Olmsted County, Minn., C. N. Ainslie Collection; 2, Cheboygan County, MICHIGAN, June 30 and July 5, 1935, collected at light by Milton Sanderson.

The holo- and allotype are deposited in the United States National Museum ; other specimens are in the collection of the American and Field Museums of Natural History, University of Minnesota, University of Kansas, K. M. Fender, Academy of Natural Sciences, Philadelphia, and the author.

All but three of the specimens were taken by myself upon the bark of aspen, *Populus tremuloides,* in a recently dead or dying condition. These trees emit a yeasty odor due to fermentation and are usually infested with ambrosia beetles. The beetles are semi-active during the day.

NITIDULA FLAVOMACULATA Rossi is a European species not previously recorded from this continent. There are before me specimens from Oakland and Almeda County, California, Oct. 1933 and March 1934 respectively, collected by J. E. Blum, and one specimen in the U. S. National Museum is labeled "Washington, D. C., 13-4-34". This species is piceous, with the legs, antennal stem, sides of pronotum, and epipleura, humeral region and discal spot of each elytron yellow. The discal spots are nearly contiguous, being separated by a very narrow sutural dark stripe, and are joined to the humeral spot by a narrow stripe of yellow.

NITIDULA CARNARIA Schäll. was first recorded in this country in 1926, in Leonard's "A List of the Insects of New York," from "N. Y." and West Point, N. Y. I later recorded it

from Madison, Wisconsin, and Oakland, California. Other records are New England, Aurelius, Michigan, Marion County, Indiana, Urbana, Illinois, Easton, Pennsylvania, and New Foundland, New Jersey. The Pennsylvania specimen was collected May 7, 1909.

Colopterus gerhardi sp. nov.

From Illinois comes the surprising discovery of a *Colopterus* remarkably distinct from our other five well-known species.

♂ *Holotype.* Broadly oval, depressed, elytra individually broadly convex. Nearly uniform testaceous brown, the head, scutellum, outer and apical elytral margins and an oval median thoracic spot vaguely darker, antennae testaceous at base, gradually darkening to the piceous club. Moderately shining, sparsely clothed with short, yellow pubescence.

Head moderately punctate, pronotal punctures coarse, shallow, separated by more than their diameters upon the disc, but more closely spaced laterally, scutellum impunctate on posterior fourth, elytral punctures ill-defined, arranged in 19 indistinct but definite rows, abdominal tergites regularly punctured, the punctures of the same size and density as on head and scutellum, punctuation below slightly finer, except for the impunctate sides of the prothorax. Labrum bilobed; antennal segments 2-6 longer than wide, 3 longest, 6-7 moniliform, 8 transverse, club 3-segmented, 1.6 times as long as wide.

Pronotum strongly transverse, 2.25 times as wide as long, widest slightly before the basal angles which are rectangular, sides regularly arcuately narrowed to the apex, basal margin sinuate on each side, disc with a well-defined sulcus extending medianly from the basal angles and continued by a vague depression which recurves to the basal margin. Elytra strongly descending on the sides to the narrowly reflexed lateral margins; posterior margin and suture, especially just behind the scutellum, depressed, each elytron broadly convex when viewed either from the side or from behind, apices each rounded truncate, exposing two abdominal segments and the posterior angles of the third.

Lateral margin of last abdominal sternite with six fine denticles, apical margin bisinuate, nearly truncate, due to the presence of the anal male segment, which is nearly concealed from above.

Dimensions: length 3.5 mm. with head somewhat deflexed, width 2.23 mm., pronotum .92 mm. long, 2.08 mm. maximum

width, 2.04 mm. at basal angles, 1.13 at anterior angles, elytra 2.23 mm. wide, 1.93 mm. at humeral angles, 1.47 mm. maximum length and 1.26 mm. from base of scutellum to apex of suture.

Holotype. Olive Branch, ILLINOIS, X: 7:09, under bark of sycamore, Wm. J. Gerhard, collector, in the Field Museum collection. The type locality is near Thebes, Alexander County, southern Illinois, on the edge of the Mississippi River bottom.

This species is related to *Colopterus morio* Er. by its sulcate thorax, but differs strikingly from all our forms by the convex elytral outline. In this character it resembles *inflatipennis* Sharp of Mexico, but that species lacks the pronotal sulci. It cannot be identified as any of the numerous neotropical species, and none of the latter have been recorded north of Mexico.

CARPOPHILUS RUFUS Murray has been considered by Horn to be a variety of *melanopterus* Erichson. There is no apparent external structural character by which the two may be separated, and an examination of the male genitalia has not shown significant differences. However the color pattern is fundamentally different, and for this reason I believe it will prove to be a valid species. A large number of *melanopterus* have been observed and they are very constant in coloration. The body is red, with black antennal club and jet black elytra, and this black color develops before the body wall has hardened. *Rufus*, on the other hand, has always reddish brown elytra, and in fully colored specimens the body is conspicuously darker than the elytra, just the reverse of the case in *melanopterus*. The only host data for *rufus* I have seen is cactus blossoms, and these were probably prickly pear. *Melanopterus* occurs in the flowers of yucca, and apparently is spread by the cultivation of its host plant, for it has been taken at Amherst, Massachusetts. Other localities in the literature and from my records are Columbia, South Carolina, Florida, Georgia, Texas, Mexico; Downer's Grove, Dubois and Urbana, Illinois, and Putman and Marshall Counties, Indiana. *Rufus* has been recorded from Central America and "U. S."; other localities are Eastland County, Texas, Hamilton County, Kansas, Meadville, Nebraska, and Rapid City, South Dakota.

Current Entomological Literature

COMPILED BY V. S. L. PATE, L. S. MACKEY and E. G. FISHER.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. All continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

Note. References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of Entomological News for 10c. The number of, or annual volume, and in some cases the part, heft, &c., the latter within ( )follows; then the pagination follows the colon :

Papers published in the Entomological News are not listed.

GENERAL.—A. D. I.—Lower Permian Insects of Kansas. [31] 144: 641. **Fernald, H. T.**—The history of entomology at the Massachusetts Agriculture College, 1867-1930. [Fernald Club] Spec. Publ., no. 1; 55 pp. **Horn, Walther.**—Obituary by R. Korschefsky. [2] 35: 177-184, ill. **Imms, A. D.**—A 'safe' fluid for museum use. [31] 144: 599-600. **Porter, C. E.**—Notas de parasitologia. [44] 42: 122-124, ill. Algunos insectos de las provincias de Atacama y Coquimbo. [44] 42: 154-55, (S). Entomologia Chilena: Localidades nuevas de algunas especies. [44] 42: 166-169, ill. Notas breves de entomologia agricola. [44] 42:171-172. **Thompson, W. R.**—Biological control and the theories of the interactions of populations [116] 31: 299-388. **Tykac, J.**—L'influence des rayons ultra-violets sur les insectes. [Casopsis] 35: 68-70. (Russian, French summary). **Weiss, H. B.**—The entomology of Thos. Boreman's popular Natural Histories. [6] 47: 213-217. **Williams, C. B.**—An analysis of four years captures of insects in a light trap. Pt. I: General survey; sex proportion; phenology; and time of flight. [36] 89: 79-132, ill.

ANATOMY, PHYSIOLOGY, ETC.—Applegarth, A. G.—The larva of Apterobittacus apterus (Mecoptera). [Microent.] 4: 109-120, ill. **Ferris, G. F. & Rees, B. E.**—The morphology of Panorpa nuptialis (Panorpid.). [Microent.] 4: 79-108, ill. **Haberman & Cumley.**—Serological investi-

gation of Drosophila antigens using the precipitation reaction. [6] 47: 219-226. **Hilton, W. A.**—Nervous system and sense organs, LXXIX: Diptera. [13] 31: 54-62, ill. **Katzin & Kirby.**—The relative weights of termites and their protoza. [Journ. Parasitol.] 25: 444-445. **Maluf, N. S. R.**—Physiology of the Arthropodan circulatory mechanisms. [6] 47: 227-286, ill. **Minkiewicz, R.**—Les sexues du Leptothorax clypeatus et la probleme de la sexualisation somatique chez les fourmis. [Bull. Ent. Pologne] 16-17: 215-239, ill. **Nakagawa, Y.**—Types of tracheal distribution on silk glands lepidopterous larvae. [Trans. Kansai Ent. Soc.] 9: 41-43, ill. **Oosthuizen, M. J.**—The body temperature of Samia cecropia as influenced by muscular activity. [Jour. Ent. Soc. So. Africa] 2: 63-73, ill. **Smith, S. G.**—Cytology and parthenogenesis of the spruce sawfly, Diprion polytomum. [Trans. Ry. Soc. Canada] 33: 214. **Sparrow & Reed.**—Disproportionate effects of plus and minus bristle genes in Drosophila melanogaster. [Trans. Ry. Soc. Canada] 33: 215. **Strebel, O.**—Biologische Studien an einheimischen Collembolen, III. [56] 17: 272-291. **Wenig, K.**—Vitamin requirement of insects. [Casopis] 35: 16-20. (Russian, English summary).

THE SMALLER ORDERS OF INSECTS.—Applegarth, A. G.—The larva of Apterobittacus apterus (Panorpid.). [Microent.] 4: 109-120, ill. **Bailey, S. F.**—A n. sp. of thrips from the Mojave Desert. [55] 15: 168-172, ill. (k). **Campos, R. F.**—La brillante y fantastica Libellula Megaloprepus coerulatus (Odonata). [44] 42: 129-130. **Ferris, G. F. & Rees, B. E.**—(see under Anatomy). **Hood, J. D.**—A new Polyphemothrips (Thysanoptera) from Peru. [44] 42: 217-220, ill. Notes on Chirothrips, with descriptions of two n. spp. (Thysanoptera). [105] 10: 461-471. **Ioff & Tiflow.**—Materialien zum studium der Flöhe. III. Gattung Amphipsylla. [Rev. Microbiol., Epidemiol. & Parasit.] 16: 401-437, ill. [Russian with German summary]. **Jellison, W. L.**—Opisodasys, a gen. of Siphonaptera. [Journ. Parasitol.] 25: 413-420, ill. **Katzin & Kirby.**—The relative weights of termites and the protozoa. [Jour. Parasit.] 25: 444-445. **Maria, A.**—Catalogo de los Odonatos Columbianos. [44] 42: 206-211. **Mayo, V. K.**—New western Ephemeroptera. [55] 15: 145-154, ill. **Rehn, J. W. H.**—Studies in North American Mantispidae (Neuropt.). [1] 65: 237-263, ill. (k*). **Setty, L. R.**—The life history of Bittacus strigosus with a description of the larva (Me-

coptera). [103] 12: 126-127, ill. **Willey, A.**—Unilateral variations in the wings of a stonefly, Allocapnia lygmaea. [Trans. Ry. Soc. Canada] 33: 207.

ORTHOPTERA.—Liebermann, J.—Contribucion al conocimiento de los Pauliniidae neotropicales (Acrid.). [44] 42: 61-65, ill. **Piza, jr., S. de Toledo.**—Dois novos Phasmidas do Brasil. [105] 10: 444-446, ill. **Rehn & Rehn.**—A review of the New World Eumastacinae (Acrid.). [Proc. Acad. Nat. Sci. Phila.] 91: 165-206, ill. (Sk*). **Severin, H. C.**—The Brown-banded Cockroach [Supella supellectilium] in South Dakota. [12] 32: 595.

HEMIPTERA.—Beamer, R. H.—Two n. spp. of Pasadenus (Cicadell.). [55] 15: 190-191. **Couch, J. N.**—The genus Septobasidium. [Fungi] Symbiosis between fungi and scale insects. [31] 144: 531. **Davis, W. T.**—Cicadas collected in the Cayman Islands by the Oxford University Biological Expedition of 1938. [6] 47: 207-212, ill. (*). **Doering, K.**—A note on Fulgorids. [103] 12: 122. **Drake, C. J.**—Two new Tingitids from Panama. [5] 46: 68-69. Chilean Tingitoidea. [105] 10: 330-334. **Drews, E. A.**—A contribution to the knowledge of the Aphididae of Nevada. [55] 15: 175-178. **Hepner, L.**—N. spp. of Aligia (Cicadell.). [103] 12: 105-117. **Hungerford, H. B.**—Two new Corixidae from Mexico. [103] 12: 123-125, ill. A new Corixid from Mexico. [103] 12: 133-134, ill. **Monte, O.**—An undescribed Gargaphia from Venezuela (Tingid.). [44] 42: 292-294, ill. **Morrison, H.**—Taxonomy of some scale insects of the genus Parlatoria encountered in plant quarantine inspection work. [U. S. D. A.] Misc. Publ. 344: 34 pp., ill. (*). **Porter, C. E.**—Nota acerca de un Hemiptero acuatico (Gerrid.). [44] 42: 331, ill. (S). **Sampson, W. W.**—California Aphids of the gen. Phorodon. [55] 15: 173-175, ill. (*). **de la Torre-Bueno, J. R.**—Remarks on the gen. Elasmostethus in North America (Pentatom.). [55] 15: 186-187, (k). **Usinger, R. L.**—Protepiptera, a n. gen. of Achilidae from Baltic amber (Fulgorid). [5] 46: 65-67.

LEPIDOPTERA.—d'Almeida, R. F.—Contribucao ao estudo dos Mechanitidae (Rhopalocera). [105] 10: 277-281, (S*). **Bates, M.**—Notes on butterflies from Hispaniola. [5] 46: 43-51, (*). **Elgueta, P. N.**—Control de adultos y crisalidas de una Cuncunilia de la lenteja (Euxoa sp.). [44] 42: 95-97. **Field, W. D.**—A n. sp. of Plebejus from

Idaho. [103] 12: 135-136. **Giacomelli, E.**—El estudio del sexo ♀ en las mariposas. [44] 42: 302-303. **Heinrich, C.**—The proper scientific name for the Corn Ear Worm. [12] 32: 595-596. **Hemming, F.**—The question of the work in which ten generic names in the Lepidoptera Rhopalocera hitherto attributed to Fabricius were first described in 1807; a case for decision by the International Commission on Zoological Nomenclature. [107] B: 8; 181-191. **Janse, A. J. T.**—On collecting, preserving and packing lepidopterous insects. [Jour. Ent. Soc. So. Africa] 2: 176-180. **Kimball, C. P.**—The Lepidoptera of Nantucket; being a supplement to: "A List of the Insect Fauna of Nantucket, Massachusetts" by C. W. Johnson. [Publ. Nantucket Maria Mitchell Asso.] 111, no. 3; 53 pp. **Schaus, W.**—New neotropical lepidoptera of the family Notodontidae. [An. Carnegie Mus.] 27: 321-344, ill. **Snipes, B. T.**—Experiencias sobre o combate de Heliothis obsoleta, praga do milho (Noctuid). [105] 10: 289-309. **Ureta, R. E.**—Ropaloceros de la provincia de Coquimbo. [44] 42: 296-299. **Wild, W.**—The butterflies of the Niagara Frontier Region. [Bull. Buffalo Soc. Nat. Sci.] 19: 55 pp., ill.

DIPTERA.—Aitken, T. H. G.—The Anopheles maculipennis complex of western America (Culic.). [55] 15: 191-192, (*). **Alexander, C. P.**—Records and descriptions of Brazilian Tipulidae, Pt. V. [105] 10: 428-444, ill. (*). Records and descriptions of Chilean Tipulidae.—Pt. III. [44] 42: 276-282, (*). **Blanchard, E. E.**—Descripcion del Cecidomiido productor de la Agalla del quebracho blanco. [44] 42: 173-176, ill. (S*). **Boshell-Manrique, J.**—A n. sp. of Aedes from Colombia (Culic.). [105] 10: 309-312, ill. **Cantrell, W.**—Relation of size to sex in pupae of Aedes aegypti, A triseriatus and A. vexans (Culic.) [Journ. Parasitol.] 25: 448-449. **Fischer, C. R.**—O macho de Acanthocera coarctata (Taban). [105] 10: 334-337, ill. (S). **Fisher, E. G.**—Costa Rican Mycetophilidae. [1] 65: 227-236, ill., (*). **Fraga, G. A.**—El gen. Osca (Tabanidae: Pangoniinae). [44] 42: 66-74, ill. (Sk). **Gottschewski, G.**—Neuere genetische untersuchungen an Drosophila in ihrer bedeutung fur das abstammungsproblem. [Die Naturwissen.] 27: 585-593, ill., cont. **James, M. T.**—The gen. Dolichopus in Colorado. [1] 65: 209-226, (*). **Lenz, F.**—Die Chironomidengattung Coelotanypus. [34] 127: 177-184, ill. **Miller, R. B.**—The ecology of the Chironomidae of Costello Lake, On-

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SPECIAL NOTICES. — Manual of Myiology. — Part VIII. By C. H. T. Townsend. 405 pp.

PRINCIPLES OF FOREST ENTOMOLOGY, Second Edition, by SAMUEL ALEXANDER GRAHAM, pages i-xvi, I-410, 165 text illustrations. McGraw-Hill Book Co., Inc., New York, N. Y. 1939, $4.00.—The passing of a decade has been marked by the appearance of this most welcome second edition of the only book limited to forest entomology in North America. This, like the first edition, is a discussion of cause and effect in relation to insect injuries and the possibilities of reducing or limiting damage by forest insects. It is recognized that direct control measures are ordinarily too costly and the author has most properly stressed the possibilities of control by forest management, one being that suggested on pages 244 and 245 in the tabular and diagrammatic presentation of Keen's Ponderosa Pine Classes and Risks. The relation between age, relative vigor and insect injury is one deserving careful attention. It has applications to other insects as well as bark beetles.

Considerable new matter appears in this edition, namely a summary account of contemporary work and workers in America, a chapter dealing with some indirect effects of forest insects, such as insects and wood rots and stains, insects and parasitic fungi and insects and virus diseases. A number of forest pests have appeared since the first edition was published and among these the author includes excellent accounts of the European pine shoot moth and European spruce sawfly. There is also new matter on *Melanophila* beetles and the *Pandora* moth. The chapter on insect abundance with its discussion of biotic balance and the relation between abundance and environmental factors has been largely rewritten to include the investigations of the past decade.

There have been important and valuable additions to the revised book though these are mostly in detail rather than relating to broader lines. The volume is the one publication dealing with forest entomological problems in America. The entomologist will find therein much of value and the forester will do well to follow the general principles elucidated by the author.

E. P. FELT, Bartlett Tree Research Laboratories.

A Classification of the Larvae and Puparia of the Syrphidae of Illinois, exclusive of Aquatic Forms. By Elizabeth M. Heiss. University of Illinois Bulletin, vol. 36, no. 1. Comprising vol. 16, no. 4 of the Illinois Biological Monographs. 142 pp., 17 pls. with 146 figs. Price, $1.50. Students of insect taxonomy are coming more and more to realize the importance of a better knowledge of the immature stages and their morphology. In this field of taxonomy, this work of Dr. Heiss' should be a welcome addition to the library of students of the dipterous family Syrphidae, as well as those who are particularly interested in the immature stages of insects in general. Dr. Heiss prefaces her work by chapters on the family characteristics, food habits and pupariation, evidence of generic relationships afforded by the larvae, parasites, and other larvae resembling Syrphidae. The taxonomic treatment contains keys to the known genera, and descriptions and keys to the species found in Illinois. An appendix gives a list of known parasites, and four pages of bibliography. The value of the present work is mainly the compilation under one cover of what has been done by various students, particularly as applied to the species occurring in Illinois. The author has secured by her own collecting and by loans from others, specimens upon which her descriptions were drawn, and she has given plain, well delineated figures of the essential characters, although some of these are credited to other authors. The placing of the specific names beneath the respective figures is a commendable feature.—E. T. Cresson, Jr.

Bats By Glover Morrill Allen. Cambridge, Massachusetts, Harvard University Press 1939. Pp. x, 368, 57 figs. $4.00. An interesting book on almost all phases of bats, except —and this is no censure—that their anatomy and physiology are not described in great detail. Into this book insects enter in two ways, as food and as enemies, chiefly parasites, of bats. That the insectivorous habit was once common to the whole group of bats "is indicated," Dr. Allen says, "by the fact that the greater number of the species now living are insect feeders, while in some of the families there are those of transitional habits, and others that have now become altogether vegetarians." He has brought together data from many sources, based largely on microscopic examination of bat droppings and of stomach contents. Dr. J. W. Hamilton, Jr's. analysis of 2200 pellets of dung from the big brown bat (*Eptesicus fuscus*) in West Virginia is quoted as showing that of the determined insect

remains, 36.1% were Coleoptera, 26.3 Hymenoptera, 13.2 Diptera, 6.5 Plecoptera, 4.6 Ephemerida, 3.4 Hemiptera, 3.2 Trichoptera, 3.2 Neuroptera, 2.7 Mecoptera, 0.6 Orthoptera. Other bats, both in the Old and New Worlds, eat moths. "Probably it is safe to say that mosquitoes really form a negligible fraction of the diet of insectivorous bats." There are some slips in this part of the book, where *Agrotis* is referred to the Geometridae (p. 79) instead of Noctuidae, Hemerobiidae are called Mayflies (p.84) and Meloidae is spelled with two "ls" (p. 85). African driver ants are mentioned as occasionally attacking colonies of bats. The summary of arthropod parasites of bats is based on Stiles and Nolan's *Key Catalogue of parasites reported for Chiroptera* of 1931 (Bull. Nat. Inst. Health, U. S. Treasury Dept. No. 155) and papers by Ferris, including one in the NEWS for June, 1924. They comprise "over forty genera of mites and ticks," four genera of bedbugs (*Cimex, Cacodmus, Leptocimex* and *Loxaspis*), five genera of the Hemipterous Polyctenidae, one Dermapteron, *Arixenia esau* of Borneo, eight genera and ninety species of Nycteribiidae, and at least twelve genera of Streblidae, both families of Diptera. "No less than fifteen genera of fleas are listed from bats, and undoubtedly others will be discovered when more thorough search has been made for these pests."—P. P. CALVERT.

Iowa State College Press Established.

A new publication outlet for manuscripts dealing with science and technology has been provided at Iowa State College, Ames, Iowa, by the recent organization of the Iowa State College Press. The major purpose of the new Press, as outlined in its statement of editorial policy, is "to serve learning, and particularly learning in fields of science and technology, by providing a channel of publication." The new press will consider for publication manuscripts, not from Iowa State College alone, but from any source. It will be especially interested in developing publications in certain subject matter fields in science and technology for which satisfactory publication channels are not elsewhere available. The manufacture and sale of Iowa State College Press publications will be conducted by the Collegiate Press, Inc., also of Ames, a firm which entered the publishing field in 1934, and which has experienced a consistent growth since. Its books have been sold in more than 30 foreign countries as well as throughout the United States.

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This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being ongest in) are discontinued.

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